

PATENT COOPERATION TREATY

PCT**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 14665PCTS	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/FI 2003/000869	International filing date (<i>day/month/year</i>) 14.11.2003	Priority date (<i>day/month/year</i>) 27.11.2002
International Patent Classification (IPC) or national classification and IPC D21G1/00, D21H19/00		
Applicant Metso paper inc. et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

a. (*sent to the applicant and to the International Bureau*) a total of 3 sheets, as follows:

sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

b. (*sent to the International Bureau only*) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

<input checked="" type="checkbox"/>	Box No. I	Basis of the report
<input type="checkbox"/>	Box No. II	Priority
<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/>	Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/>	Box No. VI	Certain documents cited
<input type="checkbox"/>	Box No. VII	Certain defects in the international application
<input type="checkbox"/>	Box No. VIII	Certain observations on the international application

Date of submission of the demand 13.05.2004	Date of completion of this report 19.01.2005
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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FI 2003/000869

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

This report is based on a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

international search (under Rules 12.3 and 23.1(b))
 publication of the international application (under Rule 12.4)
 international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

the international application as originally filed/furnished

the description:

pages 1 - 8 _____ as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

the claims:

pages _____ as originally filed/furnished

pages* _____ as amended (together with any statement) under Article 19

pages* 10 - 12 _____ received by this Authority on 13 - 10 - 2004

pages* _____ received by this Authority on _____

the drawings:

pages 1 - 3 _____ as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. The amendments have resulted in the cancellation of:

the description, pages _____
 the claims, Nos. _____
 the drawings, sheets/figs _____
 the sequence listing (*specify*): _____
 any table(s) related to the sequence listing (*specify*): _____

4. This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

the description, pages _____
 the claims, Nos. _____
 the drawings, sheets/figs _____
 the sequence listing (*specify*): _____
 any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FI 2003/000869

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-12</u>	YES
	Claims	_____	NO
Inventive step (IS)	Claims	_____	YES
	Claims	<u>1-12</u>	NO
Industrial applicability (IA)	Claims	<u>1-12</u>	YES
	Claims	_____	NO

2. Citations and explanations (Rule 70.7)

The object of the invention treating of offset printing paper in a long-nip calender after a coating process to upgrade qualities of the paper over what is known before using less raw material.

The following documents are cited in the International Search Report:

D1: US 6413371 B1
 D2: US 6164198 A

D1 reveals a paper machine and method for manufacture of paper, most appropriately for porous paper for colour powder printing. The paper web is formed as layers in the Z-direction. The paper web is calendered in an extended nip calender (belt calender) after coating. If necessary, it is possible to use pre-calendering before coating, in a way in itself known, in order to provide a low extent of pigmenting. (See abstract; column 2, lines 37-45 and column 3, line 53 - line 4, line 3.)

D2 shows a calendering method and a calender for producing paper or paperboard. The calender device comprises a fixed support element, a flexible jacket surrounding the stationary support beam, a heated counter element, a load element and a drive mechanism. (See abstract; column 2, lines 51-51 and claim 1.)

... / ...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: V

The invention according to claims 1, 5-8 and 12 differs from D1 by the fact that a specific coated printing paper (offset printing paper) is produced using a long-nip calender (see D2) and a non-contact coating process (known in the art). Furthermore a number of parameters concerning certain properties of the material of the manufactured coated paper are specified within certain intervals. (D1 does not state these parameters.)

However, since D2 describes a calender that can produce a web with a smooth surface and relative large thickness, (See column 1, lines 19-31), which is the object of the invention according to D1, it is considered to be obvious to a person skilled in the art to use a calender according to D2 in the process according to D1 for manufacturing a coated printing paper product (for example a offset printing paper). The produced coated printing paper product would in all likelihood have material properties within the specified intervals of basis weight and surface properties as in claims 1, 5-8 and 12.

Consequently, claims 1, 5-8 and 12 lack an inventive step.

Dependent claims 2-4 and 9-11 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, involve an inventive step, since said features fall within the scope of the customary practice followed by persons skilled in the art.

Accordingly, claims 2-4 and 9-11 lack an inventive step.

Consequently, the invention according to claim 1-12 is novel but is not considered to involve an inventive step. The invention is industrially applicable.

JC20 Rec'd PCT/PTO 28 APR 2005

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Claims (Amended)

1. A coated printing paper product, **characterized** in that the product is coated by means of a non-contact coating process, that the final calender used after a coating process comprises a surface conditioning device, comprising:
 - a fixed support element (14),
 - a flexible jacket (12) fitted around the fixed support element (14), such that a paper web (80) travels between the jacket (12) and a counter-roll (22),
 - a load element (18, 20) provided in connection with the support element (14), such that the flexible jacket (12) is pressed by the load element (18, 20) against the heatable counter-roll (22), the paper web (80) present between the jacket (12) and the counter-roll (22) becoming calendered,
 - at least one end wall (24, 26) mounted at the end of the flexible jacket (12) in such a way that the flexible jacket is attached to the end wall (24, 26) and the jacket is rotated along with the end walls by means of a drive mechanism,
- 10 that the coated product has surface properties on the top side of the paper as follows:

PPS-s10 roughness (ISO 8791-4)	0,7-1,5 µm
Hunter gloss (ISO/DIS8254)	30-80%, and said product having a bulk within the range of 1,15-1,3 m ³ /kg, and that said product is intended for offset printing.
- 15
- 20
- 25 2. A product as set forth in claim 1, **characterized** in that the top side is coated one or more times.
- 30 3. A product as set forth in claim 1 or 2, **characterized** in that the backing side is coated.

4. A product as set forth in claim 3, **characterized** in that the backing side is coated one or more times.
5. A product as set forth in any of the preceding claims, **characterized** in that the basis weight is within the range of 30-100 g/m².
6. A product as set forth in any of claims 1-4, **characterized** in that the basis weight is within the range of 40-70 g/m².
- 10 7. A product as set forth in any of claims 1-6, **characterized** in that the top side has a Hunter gloss (ISO/DIS 8254) within the range of 25-90%, preferably 50-70%.
- 15 8. A product as set forth in any of the preceding claims, **characterized** in that it has a density (SCAN-P7:75) of 770-870 kg/m³.
9. A product as set forth in any of claims 1-8, **characterized** in that the product calendering has also involved the use of a single- or multi-nip machine and/or soft calender as a precalender.
- 20 10. A product as set forth in any of claims 1-9, **characterized** in that its precalendering has involved the use of paper surface moistening.
11. A product as set forth in any of claims 1-9, **characterized** in that its precalendering has not involved the use of paper surface moistening.
- 25 12. A method for making a coated paper product, said paper product having at least one fiber layer, and said paper having a basis weight of 30-90 g/m², **characterized** in that the method involves the following steps:
30 coating of a paper web by using a non-contact coating process;

introducing the coated web after a coating process into a surface conditioning device, comprising:

- a fixed support element (14),
 - a flexible jacket (12) fitted around the fixed support element (14), such that a paper web (80) travels between the jacket (12) and a counter-roll (22),
 - a load element (18, 20) provided in connection with the support element (14), such that the flexible jacket (12) is pressed by the load element (18, 20) against the heatable counter-roll (22), the paper web (80) present between the jacket (12) and the counter-roll (22) becoming calendered,
 - at least one end wall (24, 26) mounted on the end of the flexible jacket (12) in such a way that the flexible jacket is attached to the end wall (24, 26) and the jacket is rotated along with the end walls by means of a drive mechanism, and
- 15 final calendering of the coated web by means of said surface conditioning device.